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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/934,693	08/23/2001	Keun Hee Ahn	0465-0852P-SP	8406
2292	7590	12/08/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			MEEK, JACOB M	
PO BOX 747			ART UNIT	
FALLS CHURCH, VA 22040-0747			PAPER NUMBER	
			2637	

DATE MAILED: 12/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/934,693

Applicant(s)

AHN, KEUN HEE

Examiner

Jacob Meek

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 11-14 is/are rejected.
- 7) ☒ Claim(s) 3-10 and 15-19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: the preamble of claim 1 states " ... where frequency offset and phase jitter are restored" This would appear to be contradictory to the functionality indicated by the invention, which would appear to be appropriate for the removal of frequency offsets and phase jitter. Applicant's disclosure indicated that the intent of the invention is for the purpose minimization of frequency offsets and phase jitter. Appropriate correction is required.

Claim 10 is objected to because of the following informalities: Typographical error "fo" requires correction. Examiner will interpret as "of" for the purpose of examination. Appropriate correction is required.

Claim 17 is objected to because of the following informalities: claim 17 is said to be dependent from claim 1 however, claim 1 is drawn to an apparatus. Examiner will analyze claim as being dependent on claim 11, which is a method claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, and 11 - 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al (US Patent 6,667,317).

With regard to Claim 1, Murakami teaches an apparatus for converting pass-band digital signals into baseband digital signals (see Figure 1, IN, 1, 2, $x(n)$, $y(n)$, and) by demodulating sine/cosine wave (I/Q). Murakami teaches phase / frequency detection section for obtaining obtain phase errors (see figure 1, 5, 13, 4a, and column 8, line 53 – column 9, line 4) between constellations of a blind decision signal and a directed decision signal (see figure 1, 4a and figure 4). Murakami is silent with respect to blind equalization. Examiner interprets CMA method to be the equivalent functionality of blind decision and DD method to be decision directed. Murakami teaches a frequency acquisition loop section (See Figure 1, $x(n)$, 4a, $y(n)$, 5, R1, and column 10, lines 28 – 41) extracting frequency offsets by means as illustrated by figure 17 where calculations are performed (see column 9, lines 10 – 27) and examiner interprets this operation occurring as a result of precalculated BW values (i.e., operation of CMA versus DD). Murakami teaches a loop section for phase tracking (see Figure 1, $x(n)$, 4a, $y(n)$, 5, R1, 13, α , β , Figure 2) where the carrier error quantity detection circuit is interpreted by the examiner to provide phase tracking functionality by the monitoring of the results of the carrier frequency error detection operation which accumulates results and examiner interprets this operation occurring as a result of precalculated BW values (i.e., operation of CMA versus DD). Murakami teaches a blind decision section for extracting the polarity of demodulated signal (see Figure 4, 17 and figure 3, 7a, $e(n)$, 8) where CMA functionality is interpreted as being equivalent to blind decision functionality. Murakami teaches a directed decision section for extracting the polarity of demodulated signal (see Figure 4, 18 and figure 3, 7a, $e(n)$, 8) where DD functionality is interpreted as being equivalent to directed decision functionality. It would have been obvious to one of ordinary skill in the art to utilize Murakami's device with CMA and DD functionality to provide an

adaptive equalizer with blind and directed decision capabilities as CMA is discussed widely as being the algorithm used for blind equalization (see NPL references).

With regard to claim 2, Murakami teaches the phase / frequency detection section operates in a blind- mode (CMA) or directed decision mode (DD) (see figure 4) based on lock detection for control of selection (see column 10, lines 3 – 16).

With regard to claim 11, the steps claimed as method are a restatement of the function of the specific components of the apparatus as claimed above and therefore would have been obvious considering the aforementioned rejection for the apparatus of claim 1.

With regard to claim 12, Murakami teaches his blind equalization extracts the polarity (see figure 2, 17) of the error for acquiring frequency offset (see column 10, lines 42 – 52).

With regard to claim 13, Murakami teaches his directed-decision equalization extracts the polarity (see figure 2, 18) of the tracking phase jitter (see column 10, lines 53 – 63) where this is interpreted to be equivalent to the tracking of phase jitter.

With regard to claim 14, the steps claimed as method are a restatement of the function of the specific components of the apparatus as claimed above and therefore would have been obvious considering the aforementioned rejection for the apparatus of claim 2.

Allowable Subject Matter

3. Claims 3 – 10, and 15 – 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Other Cited References

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Greenberg (US Patent. 5,519,356) explicitly teaches a lock detection device for use with a decision device for providing multiple modes of operation. de Lantremange (US

Patent 6,115,433), Koslov (US Patent 5,471,508) and Paik et al (US Patents 5,363,408 and 5,311,546) teach carrier recovery with changeable adaptation modes. Oh / Chin (New Blind Equalization Techniques Based on Constant Modulus Algorithm, IEEE, 5/95) and Choi /Hwang / Song (Adaptive Blind Equalization Coupled with Carrier Recovery for HDTV Modem, IEEE, 8/1993) references discuss use of equalization techniques that utilize Blind and Directed modes of operation to improve system performance.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Meek whose telephone number is (571)272-3013. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571)272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMM

A handwritten signature in black ink, appearing to read 'J. Patel', is written over the printed name and title.

JAYANTI PATEL
SUPERVISORY PATENT EXAMINER